Space Weather Forecast

Issued on Thursday, 07 July 2022 at 01:27 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight chance of R1-R2 Minor-Moderate radio blackouts. Chance of Minor Geomagnetic Storms.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity remains Low with some minor Common-class flares observed. There are currently seven sunspot regions on the visible disc, with the most complex being the sunspot region in the northeast quadrant. The remaining sunspots appear to be relatively small and stable. The larger Common-class flare early on 5 July produced Coronal Mass Ejection (CME) which may give a glancing blow at Earth on July 8th, although confidence is low. No other Earth-directed CMEs have been observed in available imagery over the past 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind is Low with a gradual decline to 320km/s. The Interplanetary Magnetic Field was weak throughout and the north-south component varied weakly. Geomagnetic activity was Quiet (Kp 1-2).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low solar activity is likely to continue with a Slight Chance of isolated Moderate-class flares. An increase is probable through the period as returning regions potentially rotate onto the eastern limb.

Solar Wind / Geomagnetic Activity: Earth may experience a glancing blow from the CME which left the sun at 05/0407 UTC, although confidence is low and a glancing blow may affect Earth during 8 July. Otherwise, solar winds could become enhanced from Low to slightly elevated if a coronal hole fast wind arrives in the next 12 to 18 hours. Quiet geomagnetic activity may become Unsettled to Active on Day 1 (7 July) with an isolated Minor Storm interval possible, although this is probably more likely to occur on Days 2 and 3 (8 and 9 July) as the CME interacts with Earth.

Energetic Particles / Solar Radiation: No solar radiation storms are likely, with the most likely sunspot contender currently in the eastern solar hemisphere.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	20	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	20	20	20
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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